

5 Thus, it is apparent that there has been provided in accordance with the present invention, a method for identifying a form through the spatial relationship of the entered data that satisfies the advantages set forth above. Although the preferred embodiment has been described in detail, it should be understood that various changes, substitutions, and alterations could be made herein. For example, different scoring weights could be given for the various types of fields. Furthermore, field characteristics other than those discussed could be used to further refine the score. Other examples are readily ascertainable by one skilled in the art and could be made without departing from the spirit and scope of the present invention as defined by the following claims.

## 15 Features and Advantages

Determining Form Identification through the Spatial Relationship of Input Data facilitates better utilization of electronic input devices such as IBM's CROSSPAD. Such devices provide temporary storage for the entered data, which can be downloaded into the computer at a later time. Processing of the data is carried out independently of the data collection. When applied to automatic forms processing, the versatility of CROSSPAD-like devices allows it to be used in the field and under conditions prohibiting the use of a computer station. The ability to identify the correct form template exclusively from the user-entered graphic data represents a new functional element and is fundamental in the forms processing scheme explained herein.

## Claims

We Claim:

1. An automated form identification method, comprising:
  - storing electronic forms data in a digital signal receiving device;
  - receiving the electronic forms data from the digital signal receiving device at a forms processing computer;
  - storing a plurality of form templates on the forms processing computer, each form template having a plurality of entry fields and a layout, the layout identifying a form location for each of the entry fields; and

- 5 identifying a matching form template for the received electronic forms data based on the entry field locations.
2. The method of claim 1, wherein:  
the digital signal receiving device is a mobile digital signal receiving device.
- 10 3. The method of claim 1, wherein:  
the digital signal receiving device is a dropout scanner.
4. The method of claim 1, wherein:  
15 the plurality of entry fields has a first field category and a second field category.
5. The method of claim 4, further comprising:  
scoring each of the entry fields for each of the plurality of form templates based on field category and the presence of data.
- 20 6. The method of claim 5, further comprising:  
accumulating a score for each of the plurality of form templates, wherein the form template with the best score is determined to be the form template matching the received electronic forms data.
- 25 7. The method of claim 6, wherein:  
the first field category is indicative of a must fill field and the second field category is indicative of an optional field.
- 30 8. The method of claim 7, wherein received electronic forms data in must fill fields contributes most to the best score and received electronic forms data in optional fields contributes to the best score.
9. The method of claim 7, wherein the absence of received electronic forms data in must fill  
35 fields detrimentally affects the best score.

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10. The method of claim 6, further comprising:

assigning a field category to a data entry field in response to the score given to another data entry field.

10 11. The method of claim 6, further comprising:

assigning a field type to each of the entry fields;

scoring each of the entry fields in response to the field type and in response to received electronic forms data corresponding to the entry field is data of the field type.

15 12. The method of claim 6, further comprising:

assigning a fixed field length to at least one of the plurality of entry fields;

scoring the entry fields having an assigned fixed field length in response to the character count of the received electronic forms data.

20 13. An automated form identification system, comprising:

a digital signal-receiving device for storing electronic forms data;

a forms processing computer capable of receiving the electronic forms data from the digital signal-receiving device;

25 a plurality of form templates stored on the forms processing computer, each form template having a plurality of entry fields and a graphic layout;

and a form identification processor for identifying the best matching form template for the received electronic forms data.

14. The automated form identification system of claim 13, wherein:

30 the form templates have a first field category and a second field category.

15. The automated form identification system of claim 9, further comprising:

a means for scoring each entry field of the form template in response to received electronic form data entered for the entry;

35 a means for accumulating the field scores into a template score; and

5 identifying the best matching form template in response to the best accumulated score for the received electronic forms data.

16. The automated form identification system of claim 13, further comprising:

a means for assigning a first field category indicative of a must fill field, and

10 a means for assigning a second field category indicative of an optional field.

17. An automated form identification method, comprising:

receiving electronic forms data from a forms device at a forms processing computer;

storing a plurality of form templates on the forms processing computer, each form template

15 having a plurality of entry fields and a layout, the layout identifying a form location for each of the entry fields; and

identifying a matching form template for the received electronic forms data in response to the entry field locations.

20 18. The automated form identification method of claim 17, wherein:

the forms device is a mobile digital signal-receiving device.

19. The automated form identification method of claim 17, wherein:

the forms device is a dropout scanner.

25 20. An automated form identification method, comprising:

receiving electronic forms data at a dropout scanner;

transferring the electronic forms data from the dropout scanner to a forms processing computer;

30 storing a plurality of form templates on the forms processing computer, each form template having a plurality of entry fields and a layout, the layout identifying a form location for each of the entry fields; and

identifying a matching form template for the electronic forms data based on the entry field locations.

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